



**European Union
Community Plant Variety Office**

PROTOCOL FOR DISTINCTNESS, UNIFORMITY AND STABILITY TESTS

Tulipa L.

TULIP

UPOV Species Code: TULIP

Adopted on 15/11/2006

I - SUBJECT OF THE PROTOCOL

The protocol describes the technical procedures to be followed in order to meet the requirement of Council Regulation 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on general UPOV Document TG/1/3 and UPOV Guideline TG/115/4 dated 5th April 2006 for the conduct of tests for Distinctness, Uniformity and Stability. This protocol applies to all varieties of *Tulipa L.* of the family *Liliaceae*.

II - SUBMISSION OF PLANT MATERIAL

1. The Community Plant Variety Office (CPVO) is responsible for informing the applicant of:

- the closing date for the receipt of plant material;
- the minimum amount and quality of plant material required;
- the examination office to which material is to be sent.

The applicant is responsible for ensuring compliance with any customs and plant health requirements.

2. Final dates for receipt of documentation and material by the Examination Office:

The final dates for receipt of requests, technical questionnaires and the final date or submission period for plant material will be decided by the CPVO and each Examination Office chosen.

The Examination Office is responsible for immediately acknowledging the receipt of requests for testing, and technical questionnaires. If no or unsatisfactory plant material is submitted the CPVO should be informed as soon as possible.

3. Plant material requirements:

Information with respect to closing dates and submission requirements of plant material for the technical examination of varieties can be found on the CPVO website (www.cpvo.europa.eu) and in the special Issue S2 of the Official Gazette of the Office published yearly in the month of September.

Quality : The plant material supplied should be visibly healthy, not lacking in vigour or affected by any important pest or disease, especially virus, as laid down in Council Directive 2000/29/EC and its amendments, or organisms impairing quality as indicated in Council Directive 98/56/EEC and Commission Directive 93/49/EEC and their amendments.

The plant material must not have undergone any treatment unless the CPVO and the examination office allow or request such treatment. If it has been treated, full details of the treatment must be given

Labelling of sample: - Species
- File number of the application allocated by the CPVO
- Breeder's reference
- Examination reference (if known)
- Name of applicant
- The phrase "On request of the CPVO".

III - CONDUCT OF TESTS

1. Variety collection:

A variety collection will be maintained for the purpose of establishing distinctness of the candidate varieties in test. A variety collection may contain both living material and descriptive information. A variety will be included in a reference collection only if plant material is available to make a technical examination.

Pursuant to Article 7 of Council Regulation No. 2100/94, the basis for a collection should be the following:

- varieties listed or protected at the EU level or at least in one of the EEA Member States;
- varieties protected in other UPOV Member States;
- any other variety in common knowledge.

It is the responsibility of Examination Office to keep the variety collection up to date.

2. Material to be examined:

Candidate varieties will be directly compared with other candidates for Community plant variety rights tested at the same Examination Office, and with appropriate varieties in the variety collection. When necessary an Examination Office may also include other candidates and varieties.

3. Characteristics to be used:

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in Annex 1. All the characteristics shall be used, providing that observation of a characteristic is not rendered impossible by the expression of any other characteristic, or the expression of a characteristic is prevented by the environmental conditions under which the test is conducted. In the later case, the CPVO should be informed. In addition the existence of some other regulation e.g. plant health, may make the observation of the characteristic impossible.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation N° 1239/95, to insert additional characteristics and their expressions in respect of a variety.

4. Grouping of varieties:

The varieties and candidates to be compared will be divided into groups to facilitate the assessment of distinctness. Characteristics which are suitable for grouping purposes are those which are known from experience not to vary, or to vary only slightly, within a variety and which in their various states of expression are fairly evenly distributed throughout the collection. In the case of continuous grouping characteristics overlapping states of expression between adjacent groups is required to reduce the risks of incorrect allocation of candidates to groups.

4.1 Tulips can be classified as follows:

Class I: Botanical species: botanical species with their subspecies, botanical and cultivated varieties and hybrids which resemble the botanical species. The botanical species can be further classified into the following groups:

1. *Tulipa kaufmanniana* Regel
2. *Tulipa fosteriana* W. Irving
3. *Tulipa greigii* Regel
4. Other species

Class II: Modern hybrids

4.2 The characteristics used for grouping are the following ones:

- (a) Flower: type (characteristic 10)
- (b) Flower: main colour (characteristic 13) with the 16 following groups:
 - Gr. 1: white..... Snowparrot
 - Gr. 2: off white
 - Gr. 3: light yellow Yellow Purissima
 - Gr. 4: medium yellow..... Yellow Flight

Gr. 5: dark yellow	Lady Margot
Gr. 6: orange.....	Orange Monarch
Gr. 7: orange red	Temple of Beauty
Gr. 8: medium red	Lefeber's Memory
Gr. 9: dark red	Prominence
Gr. 10: purple red	Blenda
Gr. 11: light pink	Bright Pink Lady
Gr. 12: medium pink	Angélique
Gr. 13: dark pink	Pink Impression
Gr. 14: medium purple	Attila
Gr. 15: dark purple	Queen of Night
Gr. 16 brown	Cairo

4.2.1 In the case of modern hybrids (see Point 4.1), the following groupings are in addition:

- (a) Flower: fringe (characteristic 17)
- (b) Flower: appearance of tepals (see also characteristic 20) with the following groups:
 - Gr. 1: convex or flat (Standard)
 - Gr. 2: pointed and reflexed (Lily flowered)
 - Gr. 3: laciniate, curled and twisted (Parrot)
- (c) Flower: partly greenish tepals (characteristics 21 and 22) with the following groups:
 - Gr. 1: absent
 - Gr. 2: present (Viridiflora)
- (d) Plant: beginning of flowering (natural conditions) (characteristic 31)

5. Trial designs and growing conditions:

The minimum duration of tests will normally be one growing cycle if the results on distinctness and uniformity are conclusive. Tests will be carried out under conditions ensuring normal growth. The size of the plots will be such that plants or parts of plants may be removed for measuring and counting without prejudice to the observations which must be made up to the end of the growing period.

The test design is as follows:

As a minimum, each test should include a total of 25 flowering plants. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

All observations on single plants for vegetatively propagated varieties determined by measurement or counting should be made on 10 plants or parts taken from each of 10 plants and any other observations made on all plants in the test.

All observations on plants should be made at the time of full flowering.

The test should normally be conducted at one place.

The test should be carried out in the open, under conditions ensuring normal growth.

6. Special tests:

In accordance with Article 83(3) of Council Regulation No. 2100/94 an applicant may claim either in the Technical Questionnaire or during the test that a candidate has a characteristic which would be helpful in establishing distinctness. If such a claim is made and is supported by reliable technical data, a special test may be undertaken providing that a technically acceptable test procedure can be devised.

Special tests will be undertaken, with the agreement of the President of CPVO, where distinctness is unlikely to be shown using the characters listed in the protocol.

7. Standards for decisions:

a) Distinctness

A candidate variety will be considered to be distinct if it meets the requirements of Article 7 of Council Regulation No. 2100/94.

b) Uniformity

For the assessment of uniformity of vegetatively propagated varieties and seed-propagated varieties which are self-pollinated, a population standard of 1% with an acceptance probability of at least 95% should be applied.

For a sample size between 6 and 35 plants for vegetatively propagated varieties, only 1 off-type is allowed.

For the assessment of uniformity of seed propagated open pollinated and hybrid varieties, relative uniformity standards should be applied.

c) Stability

A candidate will be considered to be sufficiently stable when there is no evidence to indicate that it lacks uniformity.

IV - REPORTING OF RESULTS

After each growing cycle the results will be summarised and reported to the CPVO in the form of a UPOV model interim report in which any problems will be indicated under the headings distinctness, uniformity and stability. Candidates may meet the DUS standards after one growing cycle but in some cases two or more growing cycles may be required. When tests are completed the results will be sent by the Examination Office to the CPVO in the form of a UPOV model final report.

If it is considered that the candidate complies with the DUS standards, the final report will be accompanied by a variety description in the format recommended by UPOV. If not the reasons for failure and a summary of the test results will be included with the final report.

The CPVO must receive interim reports and final reports by the date agreed between the CPVO and the examination office.

Interim reports and final examination reports shall be signed by the responsible member of the staff of the Examination Office and shall expressly acknowledge the exclusive rights of disposal of CPVO.

V - LIAISON WITH THE APPLICANT

If problems arise during the course of the test the CPVO should be informed immediately so that the information can be passed on to the applicant. Subject to prior agreement, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

The interim report and final report shall be sent by the Examination Office to the CPVO.

ANNEXES TO FOLLOW

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 <u>Legend:</u>	
QL Qualitative characteristic	
QN Quantitative characteristic	
PQ Pseudo-qualitative characteristic	
 (+) See Explanations on the Table of characteristics	
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ANNEX II

Technical Questionnaire

ANNEX I

TABLE OF CHARACTERISTICS

CPVO N°	UPOV N°	Characteristics	Examples	Note
1.	1. QN	Plant: height		
		very short	Lilliput (<i>T. humilis</i>), Red Hunter (<i>T. batalinii</i>)	1
		short	Canasta, Peach Blossom	3
		medium	Upstar	5
		tall	Apeldoorn	7
		very tall	Temple of Beauty	9
2.	2. QL	Stem: number of flowers		
		one	Apeldoorn	1
		more than one	Georgette	2
3.	3. QL	Stem: anthocyanin coloration		
		absent	Upstar	1
		present	Dow Jones	9
4.	4. QL	Stem: position of anthocyanin coloration		
		distal part only	Dow Jones	1
		whole stem	Halloween	2
5.	5. PQ	Leaf: shape		
		linear	Lilliput (<i>T. humilis</i>)	1
		narrow elliptic		2
		medium elliptic	Blushing Beauty	3
		broad elliptic	Apeldoorn	4
		narrow ovate		5
		medium ovate	Havran	6
		broad ovate	Grand Prestige	7

CPVO N°	UPOV N°	Characteristics	Examples	Note	
6.	6.	Leaf: variegation			
	QL		absent	Apeldoorn	1
			present	Unicum (<i>T. praestans</i>)	9
7.	7.	Leaf: distribution of variegation			
	PQ		on margin	Happy Generation, Madame Lefeber	1
			marginal zone	Diplomate, Flash Point	2
			dots	Grand Prestige	3
			dots and stripes	Ali Baba, Calypso	4
			stripes	Toulon	5
8.	8.	Leaf: colour of variegation			
	PQ		white	Madame Lefeber, Unicum (<i>T. praestans</i>)	1
			yellow green	Darwidesign	2
			yellow	Ton Augustinus	3
			pink		4
			red		5
			purple	First Love, Copenhagen	6
9.	9.	Leaf: undulation of margin			
	QL		absent	Apeldoorn	1
			present	Christmas Marvel	9
10.	10. (+)	Flower: type			
	QL		single	Apeldoorn	1
			double	Monte Carlo	2
11.	11.	Flower: length			
	QN		very short	Lilliput (<i>T. humilis</i>)	1
			short	Monte Carlo	3

CPVO N°	UPOV N°	Characteristics	Examples	Note	
			medium	Pink Impression	5
			long	Gander	7
			very long	Tender Beauty	9
12.	12. (+)	<u>Only single flower type varieties:</u> Flower: shape			
	QL		ellipsoid	Prinses Irene	1
			ovoid	Apeldoorn, Purple States	2
			lily flower		3
13.	13.	Flower: main colour			
	PQ		RHS Colour Chart (indicate reference number)		
14.	14.	Flower: number of colours on outer side			
	QL		one	Apeldoorn	1
			two	Early Surprise	2
			three or more	Tricolette	3
15.	15.	<u>Only varieties with more than one colour on outer side:</u> Flower: distribution of secondary colour on outer side			
	PQ		on margin	Yellow Pompenette	1
			marginal zone	Lustige Witwe	2
			flamed	Prinses Irene	3
			flushed	Peach Blossom	4
			at base	Gudoshnik	5
16.	16.	<u>Only varieties with more than one colour on outer side:</u> Flower: secondary colour on outer side			
	PQ		RHS Colour Chart (indicate reference number)		

CPVO N°	UPOV N°	Characteristics	Examples	Note	
17.	17.	Flower: fringe			
	QL		absent	Apeldoorn	1
			present	Barbados, Fancy Frills	9
18.	18.	Flower: conspicuousness of fringe			
	QN		weak	Arma	1
			intermediate	Crystal Beauty	2
			strong	Barbados, Valery Gergiev	3
19.	19.	Flower: position of fringe on tepals			
	PQ		top only	Calibra	1
			all over margin	Capri, Hamilton	2
			irregular	3	
20.	20.	Flower: shape of tip of outer tepal			
	PQ		acuminate	Aladdin	1
			acute	Temple of Beauty	2
			rounded	Caravelle	3
			emarginate	Jan van Nes	4
21.	21.	Flower: main colour of <u>central part of outer side of inner tepal</u>			
	PQ		RHS Colour Chart (indicate reference number)		
22.	22.	Flower: main colour of <u>marginal part of outer side of inner tepal</u>			
	PQ		RHS Colour Chart (indicate reference number)		
23.	23.	Flower: main colour of <u>central part of inner</u>			

CPVO N°	UPOV N°	Characteristics	Examples	Note
		<u>side of inner tepal</u>		
	PQ		RHS Colour Chart (indicate reference number)	
24.	24.	Flower: main colour of <u>marginal part of inner side of inner tepal</u>		
	PQ		RHS Colour Chart (indicate reference number)	
25.	25. (+)	Flower: main colour of <u>macule on inner side</u>		
	PQ		RHS Colour Chart (indicate reference number)	
26.	26.	Flower: different colour of border of macule		
	QL		absent Blushing Apeldoorn	1
			present Apeldoorn	9
27.	27.	Stamen: number of colours of filament		
	QL		one	1
			two	2
28.	28.	Stamen: colour of <u>basal half of filament</u>		
	PQ		white	1
			light yellow	2
			medium yellow	3
			dark yellow	4
			purple	5
			blue	6
			black	7
29.	29.	Stamen: colour of <u>distal half of filament</u>		
	PQ		white	1

CPVO N°	UPOV N°	Characteristics	Examples	Note	
			light yellow	2	
			medium yellow	3	
			dark yellow	4	
			purple	5	
			blue	6	
			black	7	
30.	30.	Stamen: colour of pollen			
	PQ		greenish	Easter Moon	1
			yellow	Gander Special	2
			yellow and purple or black		3
			purple or black	Christmas Orange	4
31.	31.	Plant: beginning of flowering (natural conditions)			
	QN		very early	Love Song (<i>T. kaufmanniana</i>), Showwinner, Early Harvest	1
			early	Bestseller, Apricot Beauty, Flair	3
			medium	Apeldoorn, Prinses Irene	5
			late	Temple of Beauty, Renown, Queen of Night	7
			very late	Dillenburg, Princess Margaret Rose	9

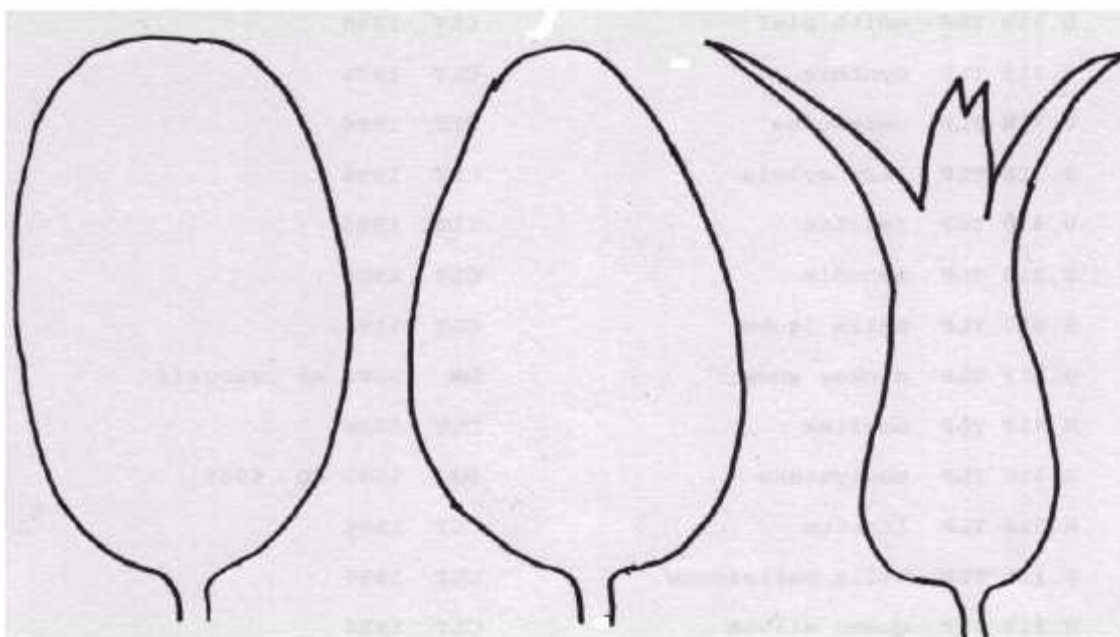
EXPLANATIONS AND METHODS

Explanations on the Table of Characteristics

Ad. 10: Flower: type

Double varieties are varieties with 12 or more tepals.

Ad. 12: Only single flower type varieties: Flower: shape



1
Ellipsoid

2
ovoid

3
lily flower

Ad. 25: Flower: main colour of macule on inner side

The macule should be observed as an entity and the tepals should not be spread.

Explanations on Grouping Characteristics

Flower: appearance of tepals



Group 1:
Convex



Group 2:
pointed and reflexed



Group 3:
lacinate, curled and twisted

Flower: partly greenish tepals



Absent



present (Viridiflora)

Species of the Example Varieties

Species	Varieties
<i>Tulipa batalinii</i> Regel	Red Hunter
<i>Tulipa fosteriana</i> W. Irving	Copenhagen, Easter Moon, Madame Lefeber, Toulon, Yellow Purissima
<i>Tulipa greigii</i> Regel	Ali Baba, Calypso, First Love, Grand Prestige
<i>Tulipa humilis</i> Herb.	Liliput
<i>Tulipa kaufmanniana</i> Regel	Early Harvest, Love Song, Showwinner
<i>Tulipa praestans</i> Hoog	Unicum

All other example varieties included in the Table of Characteristics are modern hybrids.

LITERATURE

Baker, Chr., Lemmers W. and E.Sweeney , 1999: 'Tulipa a Photographer's Botanical', Artisan, New York, USA, ISBN 1-57965-122-4

Bodegom S. and J. van Scheepen (eds), 2005: Supplement 2005, 'Classified List and International Register of Tulip Names', KAVB, Hillegom, NL, ISBN-10: 90-73350034, ISBN-13: 97-89073350038

Dobs, L, Perry, C. and C. Breed, 2002 : 'Tulipa', Quadrille Publishing Ltd. London, UK ISBN 1-903845-49-1

Frank, R., 1986: 'Zwiebel und Knollengewächse' Eugen Ulmer Verlag, Stuttgart, DE, ISBN 3-8001-6159-1

Grunert, Chr., 1990: 'Das grosse Blumenzwiebelbuch', Deutscher Landwirtschaftsverlag, Berlin, DE, ISBN 3-331-00193-7

Heath, Brent and Becky, 2001: 'Tulips for North American Gardens', Bright sky press, Albany, New York, USA, ISBN 0-9704729-6-X

Kreuzer, Joh., 1999: 'Kreuzers Gartenpflanzen-Lexicon', Band 4, Thalacker Medien, Thalacker Verlag, Braunsweig, DE, ISBN 3-87815-140-3

Le Nard, M. and A.A. de Hertogh,: 'Tulipa' in: 'The Physiology of flower bulbs', 1993, Chapter 35, p. 616-682, Elsevier, Amsterdam, NL, ISBN 0-444-87458-4

Scheepen, J. van, 1995: 'Cultivar groups in the genus *Tulipa L. (Liliaceae)*', Acta Hort. 413, p. 137-143 [Users may wish to check for an update of this publication which may have relevant information concerning classification groups.]

Scheepen, J. van, 1996 (comp.): 'Classified List and International Register of Tulip Names', KAVB, Hillegom, NL, ISBN 90-73350-026

ANNEX II

The Technical Questionnaire is available on the CPVO website under the following reference:
CPVO-TQ/115/3